Motte's figured specimen from 49 Camp, Washoe County, Nev. is not *C. spokanensis*, nor is it the same species as the Crooked River specimen, for the latter appears to be more membranous and lacks the wide wings on the margins. The other species of pod is that originally called *Ailanthus ovata* Lesquereux but now

Micropodium ovatum (Lesquereux) Brown, n. comb. Fig. 2

Ailanthus ovata Lesquereux, U. S. Geol. Survey Terr. Rept. 8:254, pl. 51, figs. 7, 8. 1883. [Fig. 8 is a branch, probably unidentifiable, and therefore not further considered here.]

Knowlton, U. S. Geol. Survey Bull. 204: 69. 1902.

Description.—Small oblong-ovate pods, rounded at the apex, acute at the base, 1.5 cm long and 8 mm wide, with a broad wing on the placental suture line. In Fig. 2 the apex is broken and the base is slightly eroded. Seeds apparently one to several, elliptic, 2 mm long, with the long axis perpendicular to the placental line. No venation appears to be present on the specimens. Such markings or striations as have been reported seem to have been caused by the processes of fossilization.

Occurrence.—In reddish shales along Bridge Creek, 9 miles northwest of Mitchell, Ore.

Type.—The original figured specimens are at the University of California. Fig. 2 is in the U. S. National Museum.

Remarks.—These small pods are obviously those of a species of legume and not of *Ailanthus*, for they show neither the longitudinal veins and reticulations, nor the small notch or emargination that is usually present on the wing beneath the seed of *Ailanthus*. Characteristic samaras of *Ailanthus americana* Cockerell are present in the flora from the Green River formation and in that from the Florissant lake beds but they can be distinguished readily from these pods.

Because of their nearly uniform small size these pods seem to represent a single species distinct from that called *Cercis* sp. by Chaney, referred to above. Although *Cercis* leaves are known from the Florissant lake beds, the Latah formation, and other strata in the regions adjacent to the John Day Basin of Oregon, none have yet been identified as such from the shales of Bridge Creek and Crooked River in the latter area. Nevertheless *Cercis* sp. appears to be a true *Cercis*. It is possible that the small pods under discussion here may be the dwarf pods of that species, but until more conclusive evidence appears it seems desirable to regard them as distinct and to adopt Saporta's generic name for similar pods from the Tertiary of southeastern France, his type being *Micropodium oligospermum*.[10] Saporta himself found it difficult to distinguish his specimens from *Cercis* but concluded that because they were apparently produced in a raceme they should be considered as belonging to a different genus. If these fruits were produced in a raceme it is possible that they too may represent *Cladrastis*, resembling the smaller

[10] Saporta, G. de. *Études sur les végétation du sud-est de la France a l'époque tertiare.* 1: 137, pl. 14, figs. 8A, 8B, 1863.—Suppl. 1. *Révision de la flore des gypses d'Aix.* 3: 221, pl. 18, fig. 1, 1873.

pods of *C. platycarpa* of Japan. What appear to be 2 or 3 closely spaced seeds may in reality be folds in the pod overlying a single large seed. If this interpretation be the correct one, then it is possible that the aforementioned specimen referred by LaMotte to *Cercis spokanensis* and the strikingly similar specimen called *Dalbergia? coloradensis* Knowlton[11] from the Florissant lake beds, may also be large specimens of this or a closely related species of *Cladrastis*.

Obviously, not having Saporta's specimens at hand, it is impossible to make detailed comparisons between them and *Micropodium ovatum*. Superficially they seem to be identical species, but only a comparison of the specimens can establish the fact.

The known fossil legumes from the shales on Bridge Creek and Crooked River, Ore., now appear to be: *Cercis* sp., *Cladrastis oregonensis*, and *Micropodium ovatum*—all represented by pods. No leaves have yet been identified as definitely leguminous, although suspicion rests upon several species now assigned to other genera.

ZOOLOGY.—*New rodents from Middle America.*[1] E. A. GOLDMAN, Bureau of Biological Survey.

Studies of the genera *Heteromys* and *Nyctomys* have resulted in the detection of the new subspecies here described. Two of these were obtained by the veteran collector, C. F. Underwood, who has been making notable contributions to knowledge of the fauna of Costa Rica for many years. Specimens of a new subspecies of *Nyctomys*, from Salvador, have been made available through the courtesy of Mrs. Florence V. V. Dickey.

For the loan of other specimens required for comparison in this connection my thanks are due to Dr. Roy Chapman Andrews, Dr. H. E. Anthony, George G. Goodwin, and John Eric Hill, American Museum of Natural History, New York, and to Dr. Glover M. Allen, Museum of Comparative Zoology, Cambridge, Massachusetts.

Heteromys desmarestianus planifrons, subsp. nov.

Pirris Spiny Pocket Mouse

Type.—From San Geronimo, Pirris, western Costa Rica. No. 250348, ♀ adult, skin and skull, U. S. National Museum (Biological Survey collection), collected by C. F. Underwood, April 12, 1931. X-Catalog number 26914.

Distribution.—Western Costa Rica; limits of range undetermined.

General characters.—Closely resembling *Heteromys desmarestianus desmarestianus* of Guatemala; color, general size and proportions very similar, but dusky of forearms tending to extend farther down on wrists; pelage

[11] KNOWLTON, F. H. *Fossil plants from Florissant.* U. S. Nat. Mus. Proc. **51** (2151): 278, pl. 19, fig. 4, 1916.

[1] Received May 24, 1937.

sparser; light tawny lateral line usually present as in *desmarestianus;* skull usually broader and differing in other details. Similar to *Heteromys desmarestianus fuscatus* of central Nicaragua, but larger; light tawny lateral line usually present (usually absent or indistinct in *fuscatus*); cranial features distinctive. Not very unlike *Heteromys desmarestianus repens* of the mountains of western Panama, but larger with relatively larger ears; pelage coarser and sparser; differing otherwise in about the same characters as from *fuscatus.* Smaller than *Heteromys oresterus* of the Cordillera de Talamanca; pelage more bristly; slender hairs among bristles deeper ochraceous buff; ears without white edging usually in *oresterus.*

Color.—Type: Upper parts blackish, becoming very dark brown or "mouse gray" (Ridgway, 1912) along flanks and outer sides of limbs, the slender light tawny hairs present but inconspicuous among the bristles; entire under parts, feet, and a line down inner side of hind leg to metatarsus white; a narrow but distinct light tawny line of demarcation along flanks; ears blackish; tail brownish above, whitish below, becoming dusky all around at tip.

Skull.—Large, with broad braincase and broad frontal and parietal regions. Closely resembling those of *desmarestianus* but usually broader, the lateral margins of frontals somewhat more prominent and projecting as supraorbital shelves; interparietal broader, more extended transversely, more evenly oval in outline, the anterior angle less developed; supraoccipital more produced on the median line, tending to bulge farther posteriorly over foramen magnum; dentition about the same. Similar to those of *fuscatus* and *repens,* but larger; interparietal relatively broader, with less evident anterior angle; supraorbital ridges more projecting and shelf-like. Compared with that of *oresterus* the skull is relatively shorter and broader; nasals about conterminous with premaxillae posteriorly (premaxillae extending well beyond nasals in *oresterus*); supraorbital ridges more projecting; angle of mandible more everted; tubercle over root of lower incisor more prominent; molariform toothrows narrowed posteriorly (sides of toothrows nearly parallel in *oresterus*); posterior upper molar smaller, the closure of the reëntrant angles through wear leaving smaller enamel islands.

Measurements.—Type: Total length, 303 mm; tail vertebrae, 169; hind foot, 35. An adult female topotype: 302; 174; 35. *Skull* (type): Greatest length, 37.7; zygomatic breadth, 18.1; interorbital breadth, 9.9; length of nasals, 16.3; width across squamosals in front of auditory meatus, 16.3; interparietal, 9.8×4.9; maxillary toothrow (alveoli), 5.5.

Remarks.— Heteromys d. planifrons is a rather slightly differentiated form bearing a closer resemblance to typical *desmarestianus* than to some of its nearer geographic neighbors. Comparison of 13 topotypes of *Heteromys desmarestianus psakastus* of Salvador with series of *desmarestianus* assumed to be typical from Chipoc and other localities in the Coban region of Guatemala, indicates that the two are identical and that, therefore, *psakastus* does not have to be considered in this connection. The new form requires no close comparison with *Heteromys oresterus,* which is a very distinct species assignable to the subgenus *Xylomys.*

Specimens examined.—Total number, 14, all from western Costa Rica as follows: San Geronimo, Pirris (type locality), 8; Jabillo, 1; Sabanilla, 1; San Ramon, Tres Rios, 4.

Heteromys desmarestianus subaffinis, subsp. nov.

Reventazon Valley Spiny Pocket Mouse

Type.—From Angostura, southern side of Rio Reventazon, opposite Turrialba, Costa Rica (altitude about 1,980 feet). No. 12904/38591, ♂ adult, skin and skull, U. S. National Museum, collected by José C. Zeledon, May 1876. Original number 98.

Distribution.—Rio Reventazon and Pacuare River valleys, eastern Costa Rica; limits of range unknown.

General characters.—Similar in size and color to *Heteromys desmarestianus planifrons* of western Costa Rica, but tawny lateral line apparently absent; cranial details, including the broader rostrum, distinctive. Resembling *H. d. fuscatus* of central Nicaragua, but larger, with broader, more massive skull. Somewhat similar to *H. d. repens* of the mountains of western Panama, but larger; ears relatively larger; skull heavier. Contrasted with *H. d. zonalis* of the Canal Zone, the slender hairs among the bristles are more tawny, and cranial features are quite different.

Color.—Type: Upper parts blackish or very dark brownish, finely mixed with light tawny due to the tone of the slender hairs among the dark bristles; outer sides of forearms, thighs, lower part of rump and scrotum mouse gray; under parts in general, inner sides of forearms, and feet white; light tawny lateral line usually present in some forms of the group absent; ears brownish; tail light brownish above, white below.

Skull.—Very similar in size and general form to that of *planifrons*, but rostrum broader; interparietal narrower, less extended transversely, with more prominent anterior angle; dentition about the same. Differing from those of *fuscatus* and *repens* mainly in decidedly larger size, the supraorbital ridges more strongly developed as projecting shelves. Compared with that of *zonalis* the skull is larger, with much broader braincase and more widely separated supraorbital and temporal ridges, but the rostrum is relatively narrower, the nasals less expanded anteriorly, and the maxillary root of the zygoma much less strongly developed; molariform teeth similar, but incisors relatively narrow.

Measurements.—Type (no body measurements available): Hind foot (dried skin), 34.5 *Skull* (type): Greatest length, 36.9; zygomatic breadth, 17.3; interorbital breadth, 10; length of nasals, 15.9; width across squamosals in front of auditory meatus, 15.8; interparietal, 8.9×5.3; maxillary toothrow (alveoli), 5.5.

Remarks.—Specimens on which this form is based were referred by me (North Amer. Fauna, No. 34, p. 28, 1911) to *Heteromys repens* with the statement that they seemed larger and somewhat different in cranial details. More extended knowledge of the group now seems to warrant their segregation as representatives of a lowland form inhabiting eastern Costa Rica.

Specimens examined.—Four, all from Costa Rica, as follows: Angostura (type locality), 3; Pacuare, 1.

Nyctomys sumichrasti pallidulus, subsp. nov.

Oaxaca Vesper Rat

Type.—From Santo Domingo, 8 miles west of Lagunas, on the Mexican National Railroad, Isthmus of Tehuantepec, Oaxaca, Mexico (altitude 900 feet). No. 73302; ♂ adult, skin and skull, U. S. National Museum (Biological Survey collection), collected by Nelson and Goldman, June 13, 1895. Original number 8079.

Distribution.—Known only from the type locality in the Arid Tropical belt on the southern side of the Isthmus of Tehuantepec, Oaxaca; probably has an extensive range in the arid Pacific coast region of southwestern Mexico.

General characters.—Color palest of the known forms of the genus; size medium. Similar to *Nyctomys sumichrasti sumichrasti*, of the eastern slope of the mountains in Vera Cruz and to *Nyctomys sumichrasti salvini* of Dueñas, Guatemala, but upper parts decidedly paler than either—near cinnamon buff instead of tawny; pelage much shorter than in *salvini*.

Color.—Type: Upper parts near "cinnamon-buff" (Ridgway, 1912), purest on head and along sides, including outer surfaces of forearms and thighs, the back inclining toward very light tawny slightly darkened by a thin admixture of dusky hairs; entire under parts white, the line of demarcation along lower part of sides sharp as usual in the genus; ears brownish; fore feet white; hind feet with only a trace of the dusky metatarsal areas so conspicuous in the other subspecies, the toes white; tail unicolor, dark brown.

Skull.—Closely resembling that of typical *sumichrasti*, but broader, with more widely spreading zygomata. Similar to that of *salvini*, but smaller, with relatively smaller molars.

Measurements.—Type: Hind foot measured in flesh, 25 (no other external measurements available). *Skull* (type): Greatest length, 31.3; zygomatic breadth, 17.9; interorbital breadth, 6; greatest width between temporal ridges, 13.4; length of nasals, 11.2; length of anterior palatine foramina, 4.5; length of palatal bridge, 4.8; maxillary toothrow, 4.8.

Remarks.—The geographic races of *Nyctomys sumichrasti* are all very closely allied. *N. s. pallidulus* approaches typical *sumichrasti* which inhabits the humid mountain slopes of eastern Mexico, but the coloration is quite distinctive. As in other species the pale coloration of *N. s. pallidulus* is probably associated with its more arid environment.

Specimens examined.—Five, all from the type locality.

Nyctomys sumichrasti florencei, subsp. nov.

Salvador Vesper Rat

Type.—From Barra de Santiago, Department of Ahuachapan, Salvador (sea level). No. 12765, ♀ adult, skin and skull, collection of Donald R. Dickey, collected by R. A. Stirton, April 6, 1927.

Distribution.—Pacific coastal region of Salvador: altitudinal range from sea level to at least 2,600 feet.

General characters.—Size smallest of the known forms of the genus; color light tawny. Closely resembling *Nyctomys sumichrasti decolorus* of northern Honduras, but very much smaller. Similar to *Nyctomys sumichrasti pallidulus* of Oaxaca, Mexico, but much smaller and color brighter, differing from *Nyctomys sumichrasti salvini* of the high mountains of Guatemala in much smaller size and more vivid coloration.

Color.—Type: Upper parts, including outer surfaces of forearms and thighs, nearly uniform light, but rich tawny, the back faintly lined with black, the dark hairs scarcely numerous enough to alter the general tone; under parts, including inner surfaces of limbs, pure white; ears brownish; fore feet white; hind feet dusky over metatarsus, the toes white; tail unicolor, dark brown. Color varying to light brownish, less vivid tawny in some specimens.

Skull.—Very similar to those of *decolorus*, *pallidulus* and *salvini*, but much smaller than any of these; dentition very light.

Measurements.—Type: Total length, 238 mm; tail vertebrae, 127; hind foot, 21. Average of eight typical adults from Hacienda Chilata, Department of Sonsonate, Salvador (altitude 2,000 feet): 230 (208–255); 117 (107–130); 22.5 (22–23). *Skull* (type): Greatest length, 29; zygomatic breadth, 16.4; interorbital breadth, 5.5; greatest width between temporal ridges, 12.8; length of nasals, 9.2; length of anterior palatine foramina, 4.5; length of palatal bridge, 4.2; maxillary toothrow, 4.1.

Remarks.—The diminutive size and light, but vivid tawny coloration distinguish *Nyctomys s. florencei* from its allies. The type was taken by the collector on a leaning tree in a swamp forest at sea level. This handsome subspecies is named for Mrs. Florence V. V. Dickey, in recognition of her interest in furthering contributions to general knowledge of natural history initiated by her husband, the late Donald R. Dickey, in a wide field.

Specimens examined.—Total number, 14, all from Salvador, as follows: Barra de Santiago (type locality), Department of Ahuachapan, 1; Hacienda Chilata, Department of Sonsonate (altitude 2,000 feet), 10; Lake Olomega, Department of San Miguel (altitude 300 feet), 1; Puerto del Triunfo, Department of Usulatan (sea level), 1; Volcan de San Miguel, Department of San Miguel (altitude 2,600 feet), 1.

Nyctomys sumichrasti costaricensis, subsp. nov.

Costa Rican Vesper Rat

Type.—From San Geronimo de Pirris, hamlet on the main road to Pirris before reaching Jabillo, near the west coast of Costa Rica, about two miles before the abrupt descent to the lowlands of Pozo Azul and about 12 miles inland from Pirris (altitude about 100 feet). No. 250331, ♂ adult, skin and skull, U. S. National Museum (Biological Survey collection), collected by C. F. Underwood, April 12, 1931. X-catalog number 26896.

Distribution.—Valley of the Rio Grande de Pirris, western Costa Rica; limits of range undetermined.

General characters.—A large dark tawny subspecies; anterior palatine foramina about equal in length to palatal bridge (shorter than palatal bridge in neighboring subspecies of the genus). Closely allied to *Nyctomys sumichrasti nitellinus* of the lower slopes of the Volcan de Chiriqui, Panama, but somewhat larger; upper parts brighter, the general tone near tawny instead of cinnamon; incisive foramina distinctly longer. Similar to *Nyctomys sumichrasti venustulus* of the Caribbean coast region of Nicaragua, but somewhat paler, the back less obscured by dusky hairs and differing otherwise in about the same characters as from *nitellinus*.

Color.—Type: Upper parts near "tawny" (Ridgway, 1912), slightly darkened on top of head and over back by a fine admixture of black-tipped hairs; cheeks, flanks, outer sides of forearms and thighs, purer, paler tawny; entire under parts, including lips, inner sides of forearms and thighs white; ears blackish; fore feet white; hind feet dusky over metatarsus, the toes white as in the other members of the genus; tail unicolor, brownish black.

Skull.—Similar to those of *nitellinus* and *venustulus*, but larger than either; nasals more pointed and usually about conterminous with premaxillae posteriorly (usually exceeded by premaxillae in posterior extension in

nitellinus and *venustulus*); anterior palatine foramina longer, about equal in length to palatal bridge (instead of shorter than palatal bridge); dentition similar.

Measurements.—Type: Total length, 270 mm; tail vertebrae, 139; hind foot, 24. An adult male topotype: 246; 126; 25. An old adult female from Jabillo, Pirris: 263; 139; 24. *Skull* (type and an old adult female from Jabillo, Pirris, respectively): Greatest length, 33.3, 31.7; zygomatic breadth, 17.7, 18.4; interorbital breadth, 5.8, 6.5; greatest width between temporal ridges, 14.1, 14.3; length of nasals, 11.6, 10.5; length of anterior palatine foramina, 5.3, 5.2; length of palatal bridge, 5.2, 5.2; maxillary toothrow (alveoli), 5, 4.9.

Remarks.—N. s. costaricensis is distinguished from the neighboring subspecies by rich tawny coloration, and the cranial detail of unusual length of anterior palatine foramina compared with the length of the palatal bridge. In point of size it is about equal to the geographically distant form *N. s. salvini* of Guatemala, but the back less obscured by dusky hairs is brighter tawny; the anterior palatine foramina are longer, and the molars smaller.

Specimens examined.—Total number, 10, all from Costa Rica, as follows: Jabillo, 5; San Geronimo (type locality), 5.

ZOOLOGY.—*Some parasitic copepods from Panama Bay.*[1]

Charles B. Wilson, State Teachers College, Westfield, Massachusetts. (Communicated by Waldo L. Schmitt.)

A small collection of parasitic copepods taken from marine fish in Panama Bay by Dr. A. O. Foster was recently sent to the author for identification. Dr. Foster is helminthologist at the Gorgas Memorial Laboratory of Panama and the copepods were captured during various laboratory investigations. Although the collection includes but eleven species, two of them prove to be new to science, and the male of a third species is here described for the first time. In addition, the host or the locality or both are new for every one of the species.

The Bay of Panama lies off the Pacific end of the Panama Canal and hence is traversed by such shipping as makes use of the canal. In recent years the Galapagos Islands have been a sort of Mecca for many scientific expeditions, the great majority of which have passed through the canal. But, as a rule, the scientists have been so intent upon reaching their ultimate goal that they have made but few investigations enroute.

A notable exception is the Third Hancock Expedition to the Galapagos Islands recently made by the University of Southern California. This expedition did not go through the canal, but went down the Pacific coast of Mexico, Central America, and South

[1] This paper was prepared under the auspices of the Gorgas Memorial Laboratory, Panama, Dr. H. C. Clark, Director. Received August 30, 1937.

America, stopping at many places along the way and securing valuable specimens. The parasitic copepods of that expedition have been reported elsewhere[2] and included some from the Panama coast. This local collection from Panama Bay admirably supplements that list and should serve as an incentive to similar collections from the Pacific coasts of Mexico, Central and South America.

Caligus bonito Wilson

Taken in considerable numbers from the mouth and gill cavity of a bonito (*Sarda* sp.), and in a single instance from the mouth of another bonito identified as *Sarda velox*. The former host is probably the California bonito, *Sarda chilensis*, found on the Pacific coast from San Francisco to Patagonia.

Caligus coryphaenae Steenstrup & Lütken

Three females were taken from the mouth of a bonito (*Sarda* sp.) in company with the preceding species. This copepod is well distributed and has been reported from both sides of the Atlantic, as well as the Pacific.

Caligus diaphanus Nordmann

A single female was taken from the body of the common jack, *Caranx hippos*. This species is even more widely distributed than either of the preceding and infests a great variety of hosts, to which the present record adds one more.

Caligus monacanthi Krøyer

Krøyer founded his new species, *monacanthi*, in 1863 upon a single specimen taken from the skin of a leather fish (*Monacanthus* sp.) in the West Indies. He identified the specimen as a male and gave a detailed description accompanied by 5 figures. Up to the time of the present collection, no further specimens had been obtained during the seventy odd years since the original discovery. Krøyer was in error as to the sex of his specimen, which was certainly a female without egg strings, rather than a male. This mistake, coupled with the entire lack of further specimens, induced the present author, when dealing with the parasites of West Indian fish, to suggest that Krøyer's specimen might well be the undeveloped female of another species.[3] But twenty specimens, including both sexes, taken from the gills of a bonito (*Sarda* sp.) and included in the present collection, definitely prohibit such an inference. The females agree with Krøyer's description and figures in every detail with one exception and, in addition, carry ovisacs to show that they are fully developed. The exception lies in the fact that these Panama specimens have a two-segmented abdomen, while Krøyer's figure represents the abdomen as one-segmented and the text states that it shows no trace of segmentation. But Krøyer does say in parentheses that the abdomen is contracted for a distance at its base and then widens. The jointing is at the

[2] University of Southern California Publications. The Hancock Pacific Expeditions **2** (4): 23–30, pl. 3. 1937.

[3] Proc. U. S. Nat. Mus. **28**: 607. 1905.

point where the diameter changes and might easily escape notice, and is scarcely visible in some of the present specimens. A female and male have been selected and given Cat. No. 69867 U.S.N.M.

Female.—Krøyer's statement that this species is marked by an elongation of the carapace, genital segment, and abdomen applies to both sexes. Carapace of female three-sevenths of the entire length and considerably narrowed anteriorly; lunules of medium size and not projecting. Median posterior lobe half the entire width of the carapace, its margin not evenly rounded but with the tip projecting a little. Lateral lobes curved inward and not quite reaching the tip of the median lobe. Free segment two-thirds as wide as the genital segment and strongly narrowed in front of the fourth legs. Genital segment elongate elliptical, three-fourths as long as the carapace, narrowed anteriorly into a short neck and lobed posteriorly. Each of the lobes is as wide as the abdomen, broadly rounded, and does not quite reach the joint in the abdomen. The latter is one-third as wide and nearly as long as the genital segment, and indistinctly two-segmented, the distal segment the longer. Caudal rami nearly as wide as long and well separated. Ovisacs attached to the ventral surface of the genital segment just inside the base of each posterior lobe and as long as the genital segment.

Second antenna large and sickle-shaped; terminal segment of second maxilla slender, longer than the basal segment, with two terminal setae but no lateral spine. Maxilliped with a swollen basal segment and a stout terminal claw. Basipod of first leg with a minute process representing the endopod; terminal segment of the exopod with 3 end spines and a long naked seta, but with no plumose setae on its posterior margin. The armature of the second legs is very peculiar; the basal segment of the exopod carries a long filose spine at the center of the outer margin and a stout spine at the distal corner, bent down across the ventral surface, with a fringe of long hairs between the two spines. The distal segment has 3 setae at its outer corner, flanged on their outer margins and plumed on their inner margins. The basal segment of the endopod has a fringe of small curved spines on the distal half of its outer margin. The second segment has a row of 6 stout spines along its outer margin; the bases of these spines are swollen, cover the whole length of the margin, and are somewhat imbricated. In the third legs the spine on the basal segment of the exopod is nearly straight and reaches the entire length of the second segment. The fourth legs are three-segmented with 5 spines, the second segment as long as the third and the two combined as long as the basal segment, which is moderately swollen. There are no rudiments of fifth legs anywhere visible. Small spherical spermatophores are attached in pairs at the opening of the sperm receptacle.

Total length 4.40 mm. Carapace 2 mm long, 1.90 mm wide. Ovisacs 2 mm long.

Male.—Carapace similar in shape to that of the female, but relatively longer, being just half of the entire length; lunules larger and suborbicular, but scarcely projecting. Posterior median lobe a little more than half the entire width and evenly rounded, extending a little beyond the lateral lobes. Free segment wider than the genital segment, greatly narrowed in front of the fourth legs. Genital segment barrel-shaped, not narrowed to a neck anteriorly and without posterior lobes. Abdomen distinctly two-segmented, the distal segment nearly twice the length of the basal, both segments of the same width throughout with straight sides. Caudal rami nearly twice as long as wide and curved inward. Appendages like those of the female with the following differences.